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VOL. 9 NO. 2 JANUARY 9, 1959

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U.S. DEPARTMENT OF AGRICULTURE

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 9 January 9, 1959 Number 2

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

CHINCH BUG survey in Kansas shows some severe and very severe infestations in six counties. Potential in Illinois for 1959 is lower than in 1958. (p. 9).

FLORIDA RED SCALE activity highest on record for December in Florida. (p. 9).

INSECT DETECTION: European corn borer new to two counties in Missouri. (p. 9).

SUMMARY OF INSECT CONDITIONS - 1958 - COLORADO. (p. 11).

List of COOPERATIVE SURVEY ENTOMOLOGISTS. (p. 14).

INSECTS not known to occur in the United States. (p. 15).

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Reports in this issue are for the week ending January 2, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

JANUARY 1959

The Weather Bureau's 30-day outlook for January calls for temperatures to average below seasonal normals over the eastern third of the Nation and also over the Southern Plains and Gulf Coast States. Above normal is indicated for the Northern Plains and areas west of the Continental Divide. In unspecified areas near normal is in prospect. Precipitation, frequently in the form of snow and sleet, is expected to exceed normal over the southern half of the Nation lying east of the Continental Divide, and in the Middle Atlantic States. Subnormal amounts are in prospect over most of the remainder of the country.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING JANUARY 5, 1959

A severe cold wave featured the weather of the week. First felt in the Northwest on New Year's Day as cold air over northwestern North America began flowing southeastward behind a deep low pressure area centered near Hudson Bay, the cold air covered virtually the entire Nation by the end of the week. Preceded in large areas by snow, sleet, glaze and gale-force winds, the cold front was followed by temperature drops of 20° to over 50°. On Sunday, subzero cold extended from the Cascades to the upper Mississippi Valley and as far south as the northern portions of Arkansas, Texas, New Mexico and Arizona, and temperatures were above freezing only in an area south of a line joining Norfolk, Virginia, and New Orleans, Louisiana, and a few small areas in the extreme Southwest. Extreme low temperatures ranged from -22° at Dumas, Texas, to -43° at Hibbing, Minnesota. Goodland, Kansas, recorded -26°, the lowest there during a 38-year record, and the lowest in that State since 1950. After 3 days of extreme cold, Wisconsin reported an ice thickness on lakes and small streams ranging from about 11 to 20 inches and frost penetration in the ground in the northern portion of 24 to 36 inches which is considered unusually deep there. Temperatures for the week averaged a few degrees above normal east of a line joining Detroit, Michigan, and Pensacola, Florida, and along the southern California coast, and below elsewhere. Relative to normal, the lower Great Plains was the coldest section. A weekly average at Amarillo, Texas, of 16° was 20° below normal and 26° colder than the previous week.

The week's precipitation exceeded an inch along most of the Atlantic coast and west of the Cascades in Washington and northern Oregon. Over 1/2 inch fell in most other sections east of the Mississippi River and in a band extending from eastern Texas through western Missouri. Elsewhere amounts were very light, with only traces or none at all in portions of the northern Great Plains, most of the Rio Grande Valley and a large area of the Far Southwest. Snowfall spread from the southwestern Great Plains to the Great Lakes region during the first part of the week, leaving a cover ranging up to 6 or 7 inches in northern and western Missouri and eastern Kansas. More snow during the weekend covered much of the Pacific Northwest and most sections north of the Ohio River with a few inches. At lower elevations the snow cover generally is light, except in the upper Great Lakes region where greatest depths range up to 40 inches or more. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

CHINCH BUG (Blissus leucopterus) - KANSAS - Annual survey conducted during November and December showed infestations to be severe in Butler County with 1,479 hibernating bugs per square foot of bunch grass; Ellsworth County, with 1,111 per square foot; McPherson County with 1,447; and Harvey County with 1,045. Very severe infestations were found in Lyon County, with 3,194 bugs per square foot and Sedgwick County with 3,250 per square foot of bunch grass. (Gates, Peters). ILLINOIS - Fall survey shows potential for 1959 lower than for 1958 and only Brown County with a severe rating, having 1,338 bugs per square foot. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MISSOURI - Fall abundance survey established two new county records in Ozark and Douglas Counties. All 114 counties of the State are now infested. (Thomas).

PEA APHID (Macrosiphum pisi) - ARKANSAS - Very low on small grain and alfalfa. Up to 4 per linear foot found on red clover. (Ark. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Numbers extremely low on alfalfa in northwest part of State. (Ark. Ins. Rpt.). OKLAHOMA - Populations lower in alfalfa fields in Tillman County. (Hatfield).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Small numbers in Caddo County wheat fields. (Hudson).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Averaged 5-10 per linear foot on oats in Washington County. (Ark. Ins. Rpt.).

GREENBUG (Toxoptera graminum) - ARKANSAS - Found reproducing on small grain on Experiment Station farm in Washington County. Infestations became very light during cold period in mid-December, then increased as temperatures rose. Ranged 20-32 per linear foot on oats. Much lighter, 6 per linear foot, on wheat. (Ark. Ins. Rpt.). OKLAHOMA - Averaged 4-6 per linear foot in wheat field south of Frederick, Tillman County. (Hatfield).

FRUIT INSECTS

SCALE INSECTS - CALIFORNIA - Aspidiotus hederae heavy on grapes in Watsonville, Santa Cruz County. Aonidiella aurantii heavy on citrus in Willows, Glenn County and medium in Orange Cove, Fresno County. Aonidiella citrina medium on oranges in Orange Cove and heavy on lemons in the Exeter area of Tulare County. (Cal. Coop. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Third Week in December, 1958 - PURPLE SCALE activity increased. Slight upward trend expected, but level will remain generally low until mid-January. FLORIDA RED SCALE activity increased. Present level highest on record for December and will continue high during January. Activity of CITRUS RED MITE increased and further increase is expected during next few weeks. There was an increase of CITRUS RUST MITE on leaves and a slight decrease on fruit. Further increase expected during next three weeks. (Fla. Coop. Sur.).

A WALNUT HUSK FLY (Rhagoletis boycei) - ARIZONA - Heavy and riddled husks on one native walnut tree among several on ranch northeast of Payson, Gila County, September 22, 1958. Det. R. H. Foote. (Ash.).

TRUCK CROP INSECTS

LIMA-BEAN POD BORER (*Etiella zinckenella*) - CALIFORNIA - Heavy and damaged bean plantings in the Patterson area of Stanislaus County. (Cal. Coop. Rpt.).

GOLDEN NEMATODE (*Heterodera rostochiensis*) - NEW JERSEY - A total of 118 soil samples from 25 properties in Middlesex County were processed with negative results. MAINE - More than 3,000 samples were collected and processed at the temporary laboratory located at the Aroostook Experimental Farm at Presque Isle. All samples processed to date were negative. NEW YORK - All soil samples collected during spring survey in eastern Suffolk County have been processed with negative results. Golden nematode cysts were recovered from one previously uninfested field in western Suffolk County. (PPC, East. Reg., Nov. Rpt.).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Light trapping in cottonseed oil mills discontinued for season, week ending December 30. Eleven traps were in service for a total of 70 trap nights, with negative results. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE ENGRAVER (*Ips confusus*) - CALIFORNIA - Damaging and killing ponderosa pines in groups of 1-100 in the Santa Rosa and Lake County forest areas. Abundance is probably due to logging activities. (Spharter).

ELM LEAF BEETLE (*Galerucella xanthomelaena*) - KANSAS - Reported from Ford County in crevices in bark and also in a house. (Thompson).

SCALE INSECTS - CALIFORNIA - *Eriococcus araucariae* heavy on araucaria pine in Cold Springs, Santa Barbara County. *Aspidiotus lataniae* and *A. hederae* medium on *Acacia melanoxylon* and *Icerya purchasi* medium on roadside acacia trees, all in Sacramento, Sacramento County. *Asterolecanium arabidis* heavy on *Pittosporum tobira* in Woodland and light in Davis, Yolo County. (Cal. Coop. Rpt.).

WHITEFLIES - CALIFORNIA - *Trialeurodes vaporariorum* medium on lantana in Bakersfield, Kern County. Heavy infestations of *Aleyrodes spiraeoides* occurred on nandina and rose and *Aleuroplatus berbericola* on oregongrape in Davis, Yolo County. (Cal. Coop. Rpt.).

CORRECTION

CEIR 9(52):1023 - SHEEP BOT FLY (*Oestrus ovis*) - KANSAS - *Not* found in 4 lambs examined from Pottawatomie County. (Knapp, Peters).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea	Heliothis zea
FLORIDA				
Gainesville 12/23,30	5	2	2	1
Quincy 12/24	1			
SOUTH CAROLINA				
Charleston 12/29-1/4	18	7	13	

SUMMARY OF INSECT CONDITIONS - 1958

COLORADO

Reported by Colo. Ins. Detection Comm.

Rangeland: GRASSHOPPERS were a problem in all of the eastern area and considerable damage to rangeland resulted. The total acreage of rangeland in the State is 27,322,260, total acres infested approximately 5,700,000 and total acres controlled about 2,000,000. The following values were computed from the amount of gain by a livestock unit (one cow and calf) on 10 acres of land. Value of gain based on market value of $33 per hundredweight. Also, the values have been computed on infested land only. Total livestock gain 724,821 cwt.; total value $23,919,167; total loss 152,676 cwt.; loss value $5,038,332; cost of control $935,846; savings $2,701,727.

Wheat Insects: Pests that were present on wheat include: BROWN WHEAT MITE (*Petrobia latens*), PALE WESTERN CUTWORM (*Agrotis orthogonia*), ARMY CUTWORM (*Chorizagrotis auxiliaris*), HESSIAN FLY (*Phytophaga destructor*), a WHEAT STEM MAGGOT (*Hylemya cerealis*), GRASSHOPPERS (*Melanoplus* spp.) and SAY STINK BUG (*Chlorochroa sayi*). Widespread infestations of grasshoppers were reduced by control measures. Many pests were local and did little damage. Much of major infestation built up after harvest had started. Total acreage 2,356,273; total yield 55,632,688 bu.; unit value $2; total value $111,265,376; total loss 771,613 bu.; loss value $1,423,226; acres infested 1,448,630; acres controlled 583,803; acres grasshopper controlled 527,169; cost of control $1,431,195; savings $4,682,738.

Alfalfa Insects: ALFALFA WEEVIL (*Hypera postica*) reduced first-cutting alfalfa 25-50 percent in areas where early spraying was not accomplished. Second and third cuttings were protected by controls. Yield was reduced a small percentage by PEA APHID (*Macrosiphum pisi*), SPOTTED ALFALFA APHID (*Therioaphis maculata*), VARIEGATED CUTWORM (*Peridroma margaritosa*), BLISTER BEETLES (*Epicauta* spp.), ALFALFA CATERPILLAR (*Colias philodice eurytheme*) and GRASSHOPPERS (*Melanoplus* spp.). Pests influencing alfalfa seed production were *Lygus* spp., GRASSHOPPERS, THRIPS and CLOVER SEED CHALCID (*Bruchophagus gibbus*). Total acreage 656,535; total yield 1,838,841 tons; unit value $25; total value $45,971,025; total loss 84,757 tons; loss value $2,118,925; acres infested 441,755; acres controlled 278,153; acres grasshopper controlled 161,456; cost of control $637,058; savings $7,058,675.

Barley Insects: In some areas GRASSHOPPERS (*Melanoplus* spp.) caused losses of as much as 35 percent. Other pests damaging the crop were ENGLISH GRAIN APHID (*Macrosiphum granarium*), ARMY CUTWORM, VARIEGATED CUTWORM and SAY STINK BUG. Total acreage 254,519; total yield 6,468,768 bu.; unit value $1; total value $6,468,768; total loss 612,896 bu.; loss value $612,896; acres infested 165,344; acres controlled 65,710; acres grasshopper controlled 54,910; cost of control $158,875; savings $1,617,192.

Ear Corn Insects: Losses were relatively light this season, with major portion of loss in the southern half of the State. Pests responsible for losses were CORN EARWORM (*Heliothis zea*), FALL ARMYWORM (*Laphygma frugiperda*), WESTERN CORN ROOTWORM (*Diabrotica virgifera*), CORN LEAF APHID (*Rhopalosiphum maidis*), SEED-CORN MAGGOT (*Hylemya cilicrura*), GRASSHOPPERS (*Melanoplus* spp.), TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*), BLISTER BEETLES (*Epicauta* spp.) and ARMY CUTWORM. Total acreage 209,957; total yield 14,268,980 bu.; unit value $1.15; total value $16,409,327; total loss 432,392 bu.; loss value $497,250; acres infested 131,263; acres controlled 62,523; acres grasshopper controlled 59,900; cost of control $154,996; savings $688,630.

Silage Corn Insects: The same conditions and pests were prevalent as for ear corn. Total acreage 179,381; total yield 2,009,804 tons; unit value $30; total value $60,294,120; total loss 97,024 tons; loss value $2,910,720; acres infested 107,397; acres controlled 30,397; acres grasshopper controlled 59,900; cost of control $91,418; savings $15,737,630.

Sweet Corn Insects: Losses were caused by CORN EARWORM, FALL ARMYWORM, CORN LEAF APHID, SEED-CORN MAGGOT, TWO-SPOTTED SPIDER MITE and WESTERN CORN ROOTWORM. Total acreage 1,759; total yield 89,810 cwt.; unit value $3; total value $269,430; total loss 5,766 cwt.; loss value $17,298; acres infested 1,759; acres controlled 1,022; acres grasshopper controlled 750; cost of control $2,419; savings $23,385.

Dry Bean Insects: Yield was reduced by BEET LEAFHOPPER (*Circulifer tenellus*), MEXICAN BEAN BEETLE (*Epilachna varivestis*), FLEA BEETLES (*Systena blanda*, *Epitrix* spp.), TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*), ONION THRIPS (*Thrips tabaci*) and WESTERN BEAN CUTWORM (*Loxagrotis albicosta*). Total acreage 148,120; total yield 1,651,724 cwt.; unit value $5.75; total value $9,497,413; total loss 34,319 cwt.; loss value $197,334; acres infested 84,544; acres controlled 38,037; acres grasshopper controlled 15,585; cost of control $159,940; savings $342,194.

Sugar Beet Insects: BEET LEAFHOPPER caused a 30-40 percent loss largely because of curly top, on the western slope. Loss on the eastern slope was 1-2 percent. Light losses were caused by GRASSHOPPERS (*Melanoplus* spp.), BEET WEBWORM (*Loxostege sticticalis*), YELLOW WOOLLYBEAR (*Diacrisia virginica*) and BLISTER BEETLES (*Epicauta* spp.). Total acreage 137,321; total yield 2,262,377 tons; unit value $12; total value $27,148,524; total loss 57,349 tons; loss value $688,188; acres infested 56,056; acres controlled 31,689; acres grasshopper controlled 26,208; cost of control $76,482; savings $894,972.

Potato Insects: Pests included POTATO PSYLLID (*Paratrioza cockerelli*), POTATO APHID (*Macrosiphum solanifolii*), GREEN PEACH APHID (*Myzus persicae*), FLEA BEETLES (*Systena blanda*, *Epitrix tuberis*), LEAFHOPPERS (*Macrosteles fascrifons*, *Empoasca* spp.), FALSE CHINCH BUGS (*Nysius* spp.) and VARIEGATED CUTWORM (*Peridroma margaritosa*). Total acreage 59,390; total yield 13,065,800 cwt.; unit value $2.50; total value $32,634,500; total loss 182,921 cwt.; loss value $457,304; acres infested 52,980; acres controlled 43,117; acres grasshopper controlled 4,390; cost of control $260,997; savings $16,332,250.

Lettuce Insects: Light losses were caused by CABBAGE LOOPER (*Trichoplusia ni*), BEET WEBWORM, SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) and POTATO APHID (*Macrosiphum solanifolii*). Total acreage 12,250; total yield 3,450,000 cartons; unit value $1; total value $3,450,000; total loss 62,500 cartons; loss value $62,500; acres infested 10,010; acres controlled 9,500; cost of control $19,000; savings $1,150,000.

Onion Insects: Damage was caused by SEED-CORN MAGGOT (*Hylemya cilicrura*), ONION THRIPS and BEET WEBWORM. Major losses were due to disease rather than insects. Total acreage 10,970; total yield 2,921,000 cwt.; unit value $2; total value $5,842,000; total loss 77,984 cwt.; loss value $155,968; acres infested 9,240; acres controlled 9,240; acres grasshopper controlled 4,270; cost of control $57,575; savings $1,460,500.

Cabbage Insects: Losses were produced by CABBAGE LOOPER, DIAMONDBACK MOTH (*Plutella maculipennis*), HARLEQUIN BUG (*Murgantia histrionica*) and LYGUS BUGS (*Lygus* spp.). The latter were responsible for most of the damage. Total acreage 5,325; total yield 12,162 cwt.; unit value $1.50; total value $18,243; total loss 373 cwt.; loss value $559; acres infested 4,624; acres controlled 3,975; acres grasshopper controlled 1,500; cost of control $16,650; savings $9,121.

Tomato Insects: Losses were caused by TOMATO FRUITWORM (*Heliothis zea*), TOMATO HORNWORM (*Protoparce quinquemaculata*), TOMATO PSYLLID (*Paratrioza cockerelli*) and BEET LEAFHOPPER. Major loss on the western slope was caused by curly top disease transmitted by beet leafhopper. Total acreage 3,449; total yield 44,501 tons; unit value $24; total value $1,068,024; total loss 8,971 tons; loss value $215,304; acres infested 2,106; acres controlled 1,471; acres grasshopper controlled 765; cost of control $6,266; savings $498,744.

Snap Bean Insects: Major pests included BEET LEAFHOPPER, MEXICAN BEAN BEETLE, FLEA BEETLES (*Systena blanda*, *Epitrix* spp.), TWO-SPOTTED SPIDER MITE and THRIPS. Total acreage 2,139; total yield 7,914 tons; unit value $100; total value $791,400; total loss 331 tons; loss value $33,100; acres infested 1,963; acres controlled 1,963; acres grasshopper controlled 1,030; cost of control $12,293; savings $395,700.

Apple Insects: Yield was influenced by CODLING MOTH (*Carpocapsa pomonella*), TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*), CLOVER MITE (*Bryobia praetiosa* complex), WOOLLY APPLE APHID (*Eriosoma lanigerum*) and APPLE APHID (*Aphis pomi*). Total acreage 16,020; total yield 3,312,500 bu.; unit value $2; total value $6,625,000; total loss 32,616 bu.; loss value $65,332; acres infested 16,020; acres controlled 15,970; cost of control $191,640; savings $1,656,250.

Peach Insects: Major loss was from catfacing by LYGUS BUGS (*Lygus elisus*, *L. hesperus*) and light losses were sustained from CLOVER MITE (*Bryobia praetiosa* complex), PEACH SILVER MITE (*Vasates cornutus*), PEACH TWIG BORER (*Anarsia lineatella*) and PEACH TREE BORER (*Sanninoidea exitiosa*). Total acreage 7,750; total yield 1,433,500 bu.; unit value $2; total value $2,867,000; total loss 310,000 bu.; loss value $620,000; acres infested 7,150; acres controlled 6,140; cost of control $36,840; savings $1,433,500.

Pear Insects: Yield was reduced by CODLING MOTH, TWO-SPOTTED SPIDER MITE, PEAR LEAF BLISTER MITE (*Eriophyes pyri*) and RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*). Total acreage 1,030; total yield 196,500 bu.; unit value $2; total value $393,000; total loss 17,310 bu.; loss value $34,620; acres infested 1,030; acres controlled 1,030; cost of control $10,300; savings $196,500.

Estimated Insect Control, Cost of Control, Loss and Savings - 1958

Total rangeland acres	27,322,260
Total crop acres	3,782,869
Total acres fruit trees	24,500
Total acres controlled	3,972,152
Total crop value	$348,349,549
Total loss value	$ 15,100,160
Total control cost	$ 4,096,355
Total savings	$ 55,205,526

Values given are *estimates* only for the crops included in the report.

COOPERATIVE SURVEY ENTOMOLOGISTS

Alabama	Walter H. Grimes, Entomology Department, Alabama Polytechnic Institute, Auburn
Arizona	Vacancy
Arkansas	W. P. Boyer, College of Agriculture, University of Arkansas, Fayetteville
California	Ronald M. Hawthorne, Department of Agriculture, Sacramento
Colorado	Leonard E. Jenkins, Department of Entomology, Colorado State University, Fort Collins
Delaware	Paul P. Burbutis, Department of Entomology, University of Delaware, Newark
Florida	Robert E. Woodruff, State Plant Board, Gainesville
Georgia	W. C. Johnson, Extension Service, University of Georgia, College of Agriculture, Athens
Idaho	B. A. Foote, Entomology Department, University of Idaho, Moscow
Illinois	Clarence E. White, Illinois Agriculture Extension Service, 280 Natural Resources Building, Urbana
Kansas	Leroy L. Peters, Department of Entomology, Kansas State College, Manhattan
Louisiana	William T. Spink, Department of Entomology, Louisiana State University, Baton Rouge 3
Maryland	Wallace C. Harding, Jr., Department of Entomology, University of Maryland, College Park
Minnesota	Robert Flaskerd, Department of Agriculture, Division of Plant Industry, University Farm, 301 Coffey Hall, St. Paul 1
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North Dakota	Vance V. Goodfellow, Office of State Entomologist, State College Station, Fargo
Oklahoma	H. W. VanCleave, Department of Entomology, Oklahoma State University, Stillwater
Oregon	Guy A. Konnersman, Division of Plant Industry, Agricultural Building, Salem
Rhode Island	Harry L. Hansen, Department of Plant Pathology-Entomology, University of Rhode Island, Kingston
South Dakota	Gale Mast, Entomolgy-Zoology Department, South Dakota State College, College Station
Tennessee	Vacancy
Texas	J. H. Hawkins, Department of Entomology, Texas A & M College, College Station
Virginia	Arthur P. Morris, Virginia Polytechnic Institute, Blacksburg
West Virginia	William H. Gillespie, 721 Nomi Street, Morgantown or Brooks Hall, West Virginia University, Morgantown
Wisconsin	Philip W. Smith, Plant Industry Division, Wisconsin Department of Agriculture, 315 N. Carroll Street, Madison 3
Wyoming	Arlen Davison, Department of Entomology, University of Wyoming, Laramie

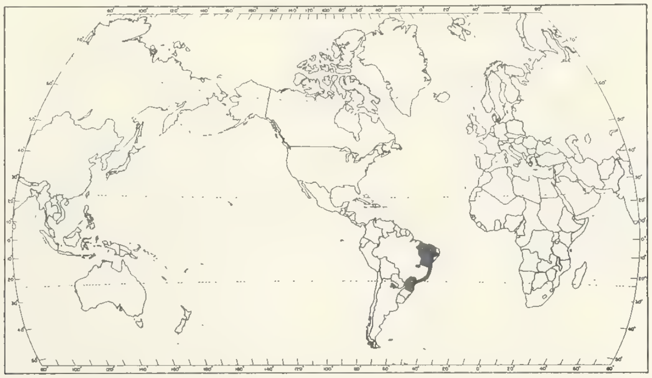
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BRAZILIAN COTTON BORER (*Eutinobothrus brasiliensis* (Hambleton))

Economic Importance: This weevil has been known as a pest in Brazil since 1905, but in recent years it has become a major pest of cotton in that country. During the 1935-36 crop season in the State of Sao Paulo, it caused an estimated loss of about 30,000 tons. Early planted cotton is attacked first, infestations sometimes reaching 95 percent during the first three months of the season and plant mortality being estimated at 50 percent. A closely related species, *Eutinobothrus gossypii* (Pierce), occurs in Peru and Ecuador and attacks cotton in much the same manner as *E. brasiliensis* in Brazil.

Distribution: Eastern Brazil and the Chaco of Argentina.

Hosts: Occurs on cotton, okra, hibiscus, roselle, floss-silktree and numerous other species of malvaceous plants. *Gossypium purpurascens* is the species of cotton most severely attacked and *G. trilobum* the least.

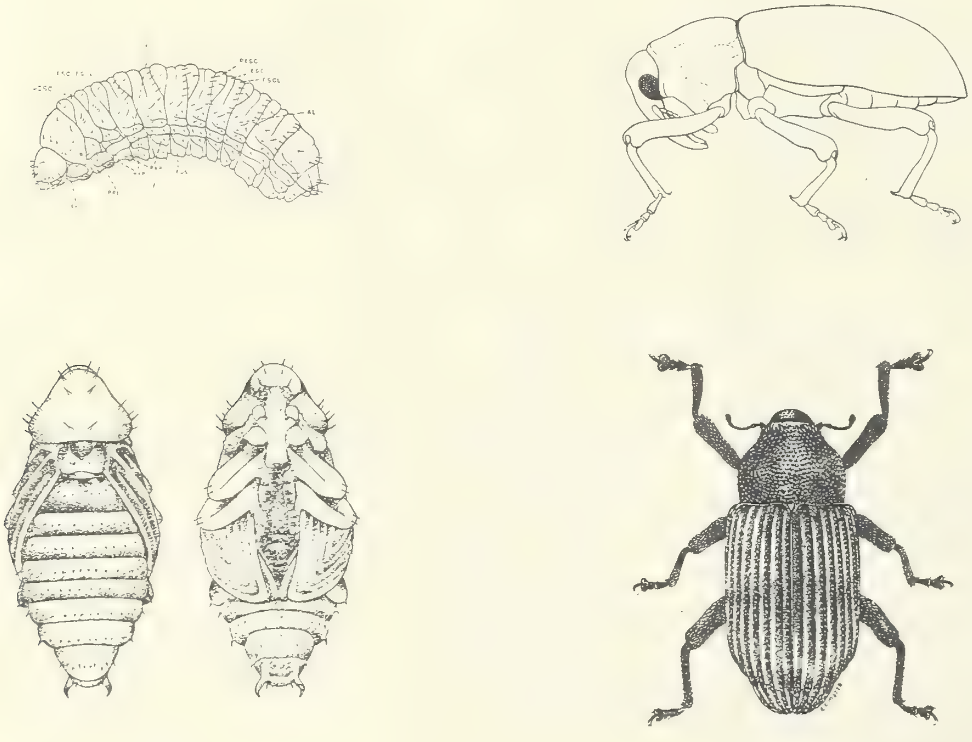


General Distribution of *Eutinobothrus brasiliensis*

Life History and Habits: Adults overwinter in trash or malvaceous weeds, but true hibernation has not been observed and oviposition may continue throughout the year where conditions permit. Overwintered females appear in September and October in Sao Paulo and oviposit until April, females of subsequent generations lay eggs through the crop season and the winter. Each female will lay about 160 eggs. Eggs are laid singly, in small cavities beneath the surface of the stem or root, and occasionally in the boll. The lower portion of the stem is preferred. Eggs hatch in 5-18 days and larvae bore into the center of the stem or root, often killing the plant. In older plants, larvae are almost entirely confined to the area between the bark and woody tissue. Feeding galleries run in all directions, often encircling the plant and causing death. In heavily infested plants, eggs are laid in aerial parts and larvae feed largely in the pith. Feeding in green bolls is limited to the pericarp. Larvae pass through 5 molts and complete their development in 29 to 88 days, varying with plant and temperature conditions. Infested plants may die rapidly or their foliage may turn reddish-brown in hot weather. Pupation takes from 8 to 31 days. The adult remains in the cell 3 to 26 days before emergence. Average development from egg to adult during the favorable season is 74 days. Adults feed first on stems and tender foliage of growing plants, later on stalks near the soil surface. All stages may be found throughout the year.

(Curculionidae, Coleoptera)

Description: Adult head and body dark blackish-brown, slightly brilliant. Antennae yellow-ferrugineous; scape smooth, attenuate in middle, dilated on distal half; funicle with 7 segments, first longest and thickest, second narrower, longer than broad, following progressively smaller. Eyes elliptical, depressed, shiny black, about one-third hidden by postocular lobe of prothorax. Rostrum pubescent, moderately arched, roughly punctate . Prothorax densely punctate , appearing grooved, anterior portion shiny, lateral lobes somewhat prominent, scutellum small, triangular. Elytra at least 2½ times longer than thorax, lateral margins subparallel, each with 6 longitudinal stripes. (Stripes smaller than in E. gossypii.) Entire surface finely reticulate . Legs brownish-yellow; femur roughly grooved and with numerous spines or pale-yellow adjacent scales. All tibia strongly ungulate at extremities. Abdomen finely reticulate ventrally with fine punctures. Fifth abdominal sternite in male with extremity truncate; rounded and somewhat curved below in female. Total length 3.04 to 4.87 mm.; width 1.4 to 2.10 mm. Mature larva typically curculinoid in shape; body color varies from white to cream, sometimes with reddish tinge; head characteristic yellowish-brown with borders slightly darkened. Length 5.83 to 7.04 mm.; width 2.14 to 2.54 mm. Pupa uniformly white at first, later turning cream colored. Length 3.90 to 5.77 mm.; width 1.87 to 2.61 mm. (Prepared in Plant Pest Survey in cooperation with other ARS agencies.) CEIR 9 (2) 1-9-59.



Larva, Pupa and Adult of E. brasiliensis

Figures (except map): Adult from Hambleton, E. J. 1937. Rev. de Entomologia 7(4):345-350. Larva and pupa from Hambleton, E.J. 1937. Inst. Biologico Arch. 8(4):47-106.

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